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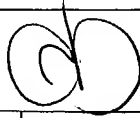
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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/090,409	03/04/2002	Minghui Hong	09819-005001	4845
26161	7590	03/10/2004	EXAMINER	
FISH & RICHARDSON PC 225 FRANKLIN ST BOSTON, MA 02110			EVANS, GEOFFREY S	
			ART UNIT	PAPER NUMBER
			1725	

DATE MAILED: 03/10/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.	Applicant(s)	
10/090,409	HONG ET AL. 	
Examiner	Art Unit	
Geoffrey S Evans	1725	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-8, 11-23 and 25 is/are rejected.
- 7) ☒ Claim(s) 9, 10 and 24 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

1. The drawings were received on December 15, 2003. These drawings are acceptable.
2. The abstract of the disclosure is objected to because on line 2 the word "comprises" is legal phraseology. Correction is required. See MPEP § 608.01(b).
3. As a preliminary matter, please note that the words "doping" or "doped" has not been given a special definition in the instant specification. It is therefore given its broadest reasonable definition in this office action: of adding impurities to a material. Applicant also has not given a special definition to the word "ablation". Accordingly the term "ablation" is defined as etching a substance.
- 4.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000.

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Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

5. Claims 1-6, 11, 12, 14, 15, and 16 are rejected under 35 U.S.C. 102(a) as being anticipated by Sugioka et al. in U.S. Patent No. 6,180,915 B1. The pattern created by Sugioka et al. is considered to be a "mark". Sugioka et al. discloses in column 4, lines 45-50) that the laser beam removes radicals (i.e. atoms or molecules) from the markable material (20) and therefore is considered to ablate the markable material. (The laser beam of Sugioka et al. is by itself below the ablation threshold of the target material and requires the plasma in addition to the laser beam for ablation of the objective side of the target to occur.) Since the Sugioka et al. reference is using the same process disclosed (the sample of target material spaced from the markable material, the laser beam set at a level lower than the ablation threshold of the target material but above the ablation threshold of the markable material, inherently "doping" must also be occurring. See EMI Group North America Inc. v. Cypress Semiconductor Corp., 60 USPQ 1423,1430 (CAFC 2001) which states "Recitation of a law of nature does not distinguish a claim from prior art. Funk Bros. Seed Co. V. Kalo Inoculant Co., 333 U.S. 127,130 (1948) ("[M]anifestations of laws of nature [are] free to all men and reserved exclusively to none. He who discovers a hitherto unknown phenomenon of nature has no claim to monopoly of it which the law recognizes.")". Sugioka et al. discloses using a solid material as the target material. Regarding claims 11 and 12, Sugioka et al. recognizes (e.g. see column 5, lines 40-45) that there is a relationship

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between the laser energy needed for this process and the distance between the target material and the markable material.

6. Claims 1-5, 14-16 are rejected under 35 U.S.C. 102(e) as being anticipated by Paananen et al. in U.S. Patent No. 6,442,974 B1. Paananen et al. discloses a target material (element 5) spaced 1mm (see column 2, lines 47-48) away from a markable material (vehicle 1). Paananen et al. disclose that the markable material struck by the laser beam evaporates (see column 1, line 67) which is the same as ablation. Since Paananen et al. does not disclose laser ablation of the target material, the power of the beam must be less than the ablation threshold for the target material. Since the Paananen et al. reference is using the same process disclosed (the sample of target material spaced from the markable material, the laser beam set at a level lower than the ablation threshold of the target material but above the ablation threshold of the markable material, inherently "doping" must also be occurring since these are the critical factors according to Applicant's specification that allow doping to occur. See EMI Group North America Inc. v. Cypress Semiconductor Corp., 60 USPQ 1423, 1430 (CAFC 2001) which states "Recitation of a law of nature does not distinguish a claim from prior art. Funk Bros. Seed Co. V. Kalo Inoculant Co., 333 U.S. 127, 130 (1948) ("[M]anifestations of laws of nature [are] free to all men and reserved exclusively to none. He who discovers a hitherto unknown phenomenon of nature has no claim to monopoly of it which the law recognizes.")". Regarding claim 14, Paananen et al. discloses using zinc aluminum alloys or brass, which is a solid substrate at room (ambient) temperature.

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7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 7,8,17 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sugioka et al. in view of Unternahrer et al. in U.S. Patent No. 5,980,101.

Unternahrer et al. teaches monitoring the fluence of a laser beam and controlling the fluence by using a controller (element 150) to achieve a desired physical effect in an industrial application using a laser. It would have been obvious to adapt Sugioka et al. in view of Unternahrer et al. to provide this to improve the laser process by making the laser energy more consistent.

9. Claims 7,8,17 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Paananen et al. in view of Unternahrer et al. in U.S. Patent No. 5,980,101.

Unternahrer et al. teaches monitoring the fluence of a laser beam and controlling the fluence by using a controller (element 150) to achieve a desired physical effect in an industrial application using a laser. It would have been obvious to adapt Paananen et al. in view of Unternahrer et al. to provide this to improve the laser process by making the laser energy more consistent.

10. Claims 13,18 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sugioka et al. in view of Ito et al. in U.S. Patent No. 5,198,843. Ito et al. uses a laser to obtain a pattern (mark). Ito et al. teaches that masks have the disadvantage that where simple designs are desired to be marked it requires changing masks every

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time a new pattern is to be marked (see column 1, lines 33-38). Ito et al. further teaches marking with a laser by using a relative movement between the workpiece and the laser beam by using a galvanomirrors. It would have been obvious to adapt Sugioka et al. in view of Ito et al. to provide this to more quickly mark a plurality of different designs.

11. Claims 19 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sugioka et al. in view of Unternahrer et al. as applied to claim 17 above, and further in view of Ito et al. in U.S. Patent No. 5,198,843. Sugioka et al. uses a mask to obtain a pattern (mark). Ito et al. teaches that masks have the disadvantage that where simple designs are desired to be marked it requires changing masks every time a new pattern is to be marked (see column 1, lines 33-38). Ito et al. further teaches marking with a laser by using a relative movement between the workpiece and the laser beam by using a galvanomirror. It would have been obvious to adapt Sugioka et al. in view of Unternahrer et al. and Ito et al. to provide this to more quickly mark a plurality of different designs.

12. Claims 13, 18 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Paananen et al. in view of Ito et al. in U.S. Patent No. 5,198,843. Ito et al. uses a laser to obtain a pattern (mark). Ito et al. teaches that masks have the disadvantage that where simple designs are desired to be marked it requires changing masks every time a new pattern is to be marked (see column 1, lines 33-38). Ito et al. further teaches marking with a laser by using a relative movement between the workpiece and the laser beam by using a galvanomirrors. It would have been obvious to adapt Paananen et al. in view of Ito et al. to provide this to more quickly mark a plurality of different designs.

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13. Claims 19 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Paananen et al. in view of Unternahrer et al. as applied to claim 17 above, and further in view of Ito et al. in U.S. Patent No. 5,198,843. Ito et al. teaches using a scanner device (a galvanomirrors) to mark a workpiece by relative movement between the laser beam and the workpiece, and that this technique doesn't have the disadvantage of requiring changing masks every time a pattern is changed. It would have been obvious to adapt Paananen et al. in view of Unternahrer et al. and Ito et al. to provide this to more quickly mark a plurality of different designs.

14. Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sugioka et al. in view of Meridan et al. in U.S. Patent No. 6,440,503 or Williams et al. in U.S. Patent No. 4,987,006. Both Meridan et al. (element 32) and Williams et al. (element 22) individually teach an adjustable mount operable to adjust spacing between a markable material and a target material. It would have been obvious to adapt Sugioka et al. in view of Meridan et al. or Williams et al. to provide this to control the marking (patterning process).

15. Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Paananen et al. in view of Meridan et al. in U.S. Patent No. 6,440,503 or Williams et al. in U.S. Patent No. 4,987,006. Both Meridan et al. (element 32) and Williams et al. (element 22) individually teach an adjustable mount operable to adjust spacing between a markable material and a target material. It would have been obvious to adapt Paananen et al. in view of Meridan et al. or Williams et al. to provide this to control the marking (patterning process).

16. Applicant's arguments filed 15 December 2003 have been fully considered but they are not persuasive. Regarding the Sugioka et al. reference, the emission of radicals (atoms) from the surface of the markable material means that ablation is taking place. Please note that using the word "comprises" in the claims 1 and 16 does not preclude the plasma and the laser beam from performing some laser ablation of the objective surface of the material as is performed by Sugioka et al. in U.S. Patent No. 6,180,915 B1. Applicant further argues that neither of the Sugioka et al. and Paananen et al. references discloses doping. However since it appears that all Applicant discloses as required in the instant specification (see pages 8 and 9) for doping to present is that the laser beam has a fluence below the ablation threshold for the target and above the threshold for the markable material, this is inherent.

17. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

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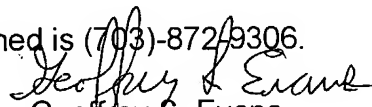
18. Claims 9,10 and 24 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

19. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Zientek et al. discloses in WO 00/64682 doping a target polymer film (element 1) by striking a material (element 2) with a laser beam sufficient to eject dopant molecules but below that which causes ablation of the material (element 2).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Geoffrey S Evans whose telephone number is (571)-272-1174. The examiner can normally be reached on Mon-Fri 6:30AM to 4:00 PM, alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Dunn can be reached on (571)-272-1171. The fax phone number for the organization where this application or proceeding is assigned is (703)-872-9306.

GSE


Geoffrey S. Evans
Primary Examiner
Group 1700